

Organisms and Their Environment

4-2 Students will demonstrate an understanding of the characteristics and patterns of behavior that allow organisms to survive in their own distinct environments. (Life Science)

4.2.5 Explain how an organism's patterns of behavior are related to its environment (including the kinds and the number of other organisms present, the availability of food, and other resources, and the physical characteristics of the environment).

Taxonomy level: 2.7-B Understand Conceptual Knowledge

Previous/Future knowledge: In 3rd grade (3-2.2), students learned how behavioral adaptations helped organisms survive in their environments. In 6th grade (6-3.5), students will study specific animal behaviors (including hibernation, migration, defense, and courtship).

It is essential for students to know that in order to survive within an ecosystem, plants, and animals act in distinctive ways called *behaviors*.

- For example, how animals eat, sleep, and communicate; or how plants reproduce or get what they need to make their food are all behaviors.
- Patterns of behavior are related to an organism's environment.
- Changes in the environment, like those caused by climate or pollution, can lead to changes in the behavior of living things.

Within a specific environment, an organism's pattern of behavior is related to:

- other organisms that are present,
- the availability of food and other resources, or
- the physical characteristics present.

Some examples of these patterns of behaviors are:

- Organisms may compete for space, food, or resources if too many organisms are within the same environment and need the same resources.
- The number of organisms in an environment will increase or decrease depending on the availability of food and other resources.
 - Eating behaviors of some animals may change depending on the type of food available.
 - As some tall trees are cut, smaller plants can grow as the sunlight becomes available.
- The temperature, amount of rainfall, and the vegetation in an environment can affect how an organism reacts to its environment.
 - Animals may hibernate when the temperature becomes too cold and food becomes scarce.
 - Seeds will not germinate if the proper amount of rainfall or temperature is not available.

Organisms must seek the environment that fits their structure and lifestyle. Organisms may change their behavior because of what happened in the environment around them. When the environment changes, some plants and animals survive and others die or move to new locations.

It is not essential for students to study specific animal behaviors (including defense and courtship).

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Assessment Guidelines:

The objective of this indicator is to *explain* how patterns of behavior are related to its environment; therefore, the primary focus of assessment should be to construct a cause-and-effect model of the various ways that patterns of behavior are affected by kinds and the number of other organisms present, the availability of food and other resources, and the physical characteristics of the environment. However, appropriate assessments should also require students to *recall* environmental factors that affect the organisms; *exemplify* ways that the environment affects animal behavior; *compare* patterns of behaviors due to various causes; or *summarize* patterns of behaviors that are in response to environmental factors.